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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/550,867

09/22/2005

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04/13/2010

EXAMINER

ARNADE, ELIZABETH

ART UNIT

PAPER NUMBER

1791

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/550,867	<b>Applicant(s)</b> MASUDA ET AL.	
	<b>Examiner</b> ELIZABETH ARNADE	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 3/31/2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6,8,10 and 11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,8,10 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/22/2005</u> .   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Claims 1-2, 4-6, 8, and 10-11 are pending as amended on 3/31/2010, claims 3, 7, and 9 having been canceled.

#### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/31/2010 has been entered.

#### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1-2, 4-6, 8 and 10-11 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2, 4-6, 8, and 10-11 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the content" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the content" in line 3. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 4, 6, and 11 rejected under 35 U.S.C. 103(a) as obvious over US6204211, Ohara et al. ('Ohara' hereinafter), in view of US20050179008, Xiao et al. ('Xiao' hereinafter).

In regards to claims 1 and 4, Ohara teaches a luminescent glass article (Abstract), comprising a structure in which a luminescent substance (i.e. rare earth elements) is dispersed uniformly in the glass (Col. 13, lines 7-12), wherein the content of the luminescent substance in the luminescent glass article is 0.1-20 mass% (Col. 12, lines 31-33); light transmittance is 20 to 90% at a thickness of 10mm (Col. 16, lines 5-10). Ohara further discloses specific examples wherein the content of the luminescent substance in the luminescent glass article is 1.1-2.8 mass % (i.e. roughly 2 mass % as shown in examples 1-1 through 1-4; Tables I and II).

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As for claims 1 and 4, Ohara does not expressly disclose the luminescent substance having an average particle size of 500 to 5,000 micrometers; and an initial luminescence intensity just after irradiation of light of 1,000 lux for 20 minutes is 200 to 4,000 mcd/m<sup>2</sup>.

Xiao discloses a closely related invention of a luminescent glass article comprising a structure in which a luminescent substance is dispersed uniformly in the glass, wherein the content of the luminescent substance in the luminescent glass article is 0.01-40 mass % (Abstract); wherein the particle size of the luminescent substance is 10 micrometers to 20 millimeters (Abstract). Xiao further discloses specific examples wherein the particle size of the luminescent substance is 500-5,000 micrometers (i.e. 800 and 1200 micrometers in examples 1 and 2, respectively; paragraphs [0059] and [0063])

It would be obvious to one of ordinary skill in the art at the time the invention as made to incorporate the particle size of Xiao with the luminescent substance and resulting luminescent article of Ohara. The motivation is the rationale in that both Ohara and Xiao teach a similar luminescent glass article comprising similar mass % incorporation of a luminescent substance in a silica based glass and although Ohara is silent as to a particle size, it would be obvious to use a particle size known in the art to produce such luminescent glass articles. Additional motivation is the rationale provided by Xiao in that the taught luminescent glass article incorporating the disclosed mass % of luminescent substance and particle size provides a long aftertime glow (paragraph [0011]) and can be produced by a simple process (paragraph [0012]).

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In regards to the remainder of claim 1, stating that the luminescent glass article's initial luminescence intensity just after irradiation of light of 1,000 lux for 20 min is 200 to 4,000 mcd/m<sup>2</sup> would have been an intrinsic property of the luminescent glass article of Ohara in view of Xiao. In other words it would be inherent for a luminescent glass article comprising a luminescent substance to have an initial luminescence intensity and since the luminescent glass article of Ohara in view of Xiao teaches the claimed content and particle size, it would inherently possess the claimed initial luminescence intensity and therefore reads on the claim in full.

Similarly in regards to claim 2, stating that the luminescent glass article is characterized in that the luminescence intensity 10 min after the irradiation is 10% or more of the initial luminescence states a property of the luminescent glass article. Since the luminescent glass article of Ohara in view of Xiao comprises a luminescent substance in the glass at the particle size and content as claimed, it would be inherent that the article would have the luminescence intensity as claimed.

In regards to claims 6 and 11, Ohara discloses that the luminescent glass article is composed of aluminosilicate glass (Abstract).

7. Claims 5 and 10 rejected under 35 U.S.C. 103(a) as obvious over Ohara in view of Xiao and as referenced by US5204289, Moh.

In regards to claims 5 and 10, Ohara and Xiao combine to teach the luminescent glass article of claims 1 and 4.

Ezoe and Hesse are silent as to the softening point temperature of the luminescent glass article.

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It would be inherent that the luminescent glass article of claims 1 and 4 would have a softening point as this is a physical property inherent of glass.

Furthermore, it would be obvious to one of ordinary skill in that art at the time the invention was made to make the luminescent glass article of aluminosilicate-based glass as disclosed by Ohara (Abstract) and with a softening point of 650 degrees Celsius since it was widely known at the time of the invention as referenced by Moh (Col. 15, lines 41-44) that aluminosilicate-based glass may be made with a composition resulting in a softening point of 650 degrees Celsius.

8. Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Ohara in view of Xiao as applied to claim 4 and further in view of US4405881, Kobayashi.

Ohara and Xiao combine to teach the luminescent glass article of claim 4 as detailed above.

Ohara does not expressly disclose that the luminescent glass article is formed into a block or plate having a thickness of 5-10 mm.

Kobayashi discloses a closely related invention of a luminescent glass article wherein the luminescent glass article is a plate with a thickness of 10mm and wherein the content of luminescent substance in the luminescent glass article is 1.0 mass % (Col. 3, lines 29-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was to include the plate thickness of Kobayashi with the luminescent glass article of Ohara in view of Xiao. The rationale to combine the teachings of Kobayashi with the glass article of Ohara in view of Xiao is the motivation provided by the teaching

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of Kobayashi in that there is an inverse relationship between the thickness of the luminescent glass article and mass percent of luminescent substance needed to balance glass melting properties, costs, and an effect of the luminescent substance (Col.3, lines 38-46); thus, a selection of a plate of 10mm thickness may be appropriate.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US3527711, Barber et al., teaches a luminescent glass article comprising a luminescent substance having a particle size of 1-20 microns.

US4588540, Kiefer et al., teaches a borosilicate glass with a softening temperature of 815°C. US2005/0160637, Hesse, teaches a luminescent glass article comprising a luminescent substance having a particle size of 10-70 microns and wherein a particle size is a result effect variable such that the larger the particle size, the higher the intensity of luminescence.

10. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIZABETH ARNADE whose telephone number is (571)270-7664. The examiner can normally be reached on M-F, 9-5 p.m., except alternate F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. A./  
Examiner, Art Unit 1791

/Steven P. Griffin/  
Supervisory Patent Examiner, Art  
Unit 1791

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